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EDITORIAL

On these pages the editor offers his opinions, unshackled by advertising patrons and unrestrained by anything save a sense of the decent and the truthful. The editor, alone, is responsible for their type, their tone and their tenor.

THE HISTORY OF PHARMACY

IT seems hardly credible that anyone really interested in the profession of pharmacy should overlook the instrumentality as well as the esthetic attributes of a long knowledge of the background of the profession. Chiselled into one of the blocks of marble in the main portal of the Archives Building in Washington is the phrase "The past is but the prologue to the present," and this phrase has a coverage that indicates the need and value of knowing the history of any phase of human activity. No military student would be considered trained unless he was thoroughly conversant with the military experience of the past, and it might be said with equal truth that no student in any profession is trained effectively in his field unless he has been diligently made aware of the history of his particular calling. Experience has been forming for long ages, and whether we want to acknowledge it or not, the enduring things of this world are the old things. And yet in this somewhat blasé day we often hear it said, "Why worry about the past? We are living in the twentieth century—let's think of today." Whoever makes this statement forgets that the past is the parent of the present, and in many instances the *transparency* through which we can illumine the future. Science has proven by a thousand proofs that the world today is what it is because it has been, in ages past, just what it was, and at the present is simply the last stand of the past and the first suggestion of the future. In that present we live and move; in point of time it is all that we own, and yet we can no more separate the present from the past than we can divide generations of men. Actually, divisions of time are but the shadows of trees over the river's flow; that insignificant something that scarcely alters the course of the least drop; the flow of the river goes on without stay, totally unaware of the presence of the shadow, and life too flows on without noting its divisions.

From an address given by someone, somewhere, sometime ago, is quoted the following paragraph: "What are the good things that

are old? The ocean is old, the mountains are old, this earth is old, the sun is old, the stars are old, the universe is old. Today they move in their course by laws that have held for ages and that will hold long after we have left this scene. Human nature is old. We are the same as our fathers have been. Human nature has not changed, and it is the part of experience to learn the best lessons of the past in order to know the present and predict the future. The man who does not know what has gone by cannot understand what is happening now, and has no clue to what will come hereafter."

Yet we find very little enthusiasm with many pharmaceutical educators in the matter of encouraging the teaching of, and the learning of, the history of the profession. Rarely, if ever, is the subject given the importance it deserves in the curriculum, and frequently when it does appear it is given only in a makeshift fashion, and often by one little qualified, either in the letter or in the spirit of the subject, to inspire his young listeners and to impress them, not only with the niceties, but also with the nutrition of this important branch.

Administrators of the pharmaceutical curriculum should see to it that those delegated to interpret pharmaceutical history to the student groups, should be fitted to the post, in love with the subject, and capable of sharing it with their students in the lush and lively fashion that insures interest and understanding. Too often the subject has been administered in a verbal barbiturate that paralyzes the mental protoplasm of even a willing student.

IVOR GRIFFITH.

ORIGINAL ARTICLES

EFFECT OF INTRODUCTION OF THE HALOGENS INTO THE PHENOL MOLECULE ON TOXICITY TO GOLDFISH. II. MONOBROMOPHENOLS

By W. A. Gersdorff and L. E. Smith

[Contribution from the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture.]

Introduction

IN a previous paper (1) the effect of the introduction of the chlorine atom into the phenol molecule on toxicity to goldfish was studied with respect to the two variables, concentration and survival time. As in the case of the nitro group (2) but not the methyl group (3), toxicity was found to be affected with respect to both variables. However, the change of position of the chlorine atom, unlike that of the nitro group but like that of the methyl group, was found to be accompanied by a change in toxicity with respect to concentration alone. A quantitative comparison was made.

This paper presents the results of similar studies on the effect of the bromine atom. Toxicological tests on the three monobromophenols were made in the same manner, the general method being described in a previous paper (4). Goldfishes of the same lot as used for the study on chlorophenols, weighing between 2 and 4 g. each, were used as the test animals, and the same temperature, 27.0°±0.2°, was maintained, therefore, the results may be compared with those obtained with the chlorophenols as well as the standard substances used for comparison, phenol and rotenone, which were reported in the same paper (1).

The ortho and para compounds, which were obtained from the Eastman Kodak Company, were purified by distillation under reduced pressure, the constant-boiling fraction in each case being used for the work. The boiling point of this fraction for the ortho compound at atmospheric pressure was 196 degrees. The para compound after distillation was recrystallized from dilute alcohol; its melting point was 64 degrees.

m-Bromophenol was prepared from the corresponding bromophenyldiazonium borofluoride by a procedure described in another paper (5).

Because of the slight solubility of the bromophenols in water, acetone was used as the solvent in the preparation of stock solutions of the substances. From these the proper aliquot portions were taken to prepare the test solutions. In the latter a concentration of acetone higher than 1.5 cc. per liter was avoided. To assist in quick solution at some of the higher concentrations of the test substances where there was a tendency to partial separation, more acetone was added to make this limiting concentration. All the substances formed clear solutions at the concentrations tested.

Experimental Results

The results are assembled in table 1. A graphical comparison of the toxic action as expressed by these data is afforded by the survival-time and velocity-of-fatality curves in Figures 1 and 2. As in previous studies on phenolic compounds, the geometric rather than the arithmetic mean survival time was selected as the form of average defining best the position of each frequency distribution and was used in the drawing of the graphs. Where desired in locating portions of the velocity-of-fatality curves, intermediate points were obtained from interpolated points on the survival-time curves. The indefiniteness of the curves near the thresholds in indicated in Figure 2 by dotted lines. The curves for phenol are plotted from data given previously (1). The curves for rotenone are not shown, because they require a much more expanded scale.

From inspection of the velocity curves it is seen that the effect of the introduction of bromine into the phenol molecule, like that of chlorine, has been to increase toxicity in the following respects: The isomers become toxic at a lower concentration than does phenol; they attain a higher maximal acceleration (rate of increase of velocity of fatality with increase in concentration); they maintain their maximal acceleration to higher concentrations; and, as a result, they reach a higher velocity of fatality, i. e., they kill more quickly at high concentrations.

However, the increased effect is not proportionate when relative toxicity is considered from each aspect, as shown at the extremes of toxic action. Although the bromophenols are nearly five times as toxic as phenol when compared at the thresholds, the concentrations necessary to kill regardless of time, they are only about twice as toxic at the region of practically constant velocity, when compared according to time of kill regardless of concentration.

Thus, the introduction of the bromine atom, like that of the chlorine atom (1) and that of the nitro group (2) but unlike that of the methyl group (3), results in compounds having a markedly different mode of toxic action from that of phenol. Toxicity is affected with respect to both concentration and survival time and the effects are quantitatively different. However, the change of position of the atom, like that of the chlorine atom and of the methyl group but unlike that of the nitro group, is accompanied by a change in toxicity very nearly, if not entirely, with respect to concentration alone.

TABLE 1

TOXICITY OF MONOBROMOPHENOLS TO GOLDFISH AT 27° ± 0.2°

Compound and concentration Milligrams per liter	Fishes used Number	Mean length of fishes Millimeters	Mean weight of fishes [1] Grams	Mortality in 8 hours Per cent.	Mean survival time [2] Arithmetic Minutes	Mean survival time [2] Geometric Minutes	1.000÷ Geometric mean survival time
o-Bromophenol							
238.	9	46	3.0	100	23±1	22× or ÷1.04	45.5
211.	9	45	2.8	100	22±1	22× or ÷1.02	45.5
176.	10	45	2.8	100	37±1	37× or ÷1.02	27.0
158.	10	45	2.8	100	41±1	41× or ÷1.02	24.4
144.	10	46	3.0	100	57±3	56× or ÷1.06	17.9
132.	14	45	2.8	100	80±4	77× or ÷1.05	13.0
114.	25	46	3.0	100	138±8	123× or ÷1.07	8.13
106.	14	45	2.8	100	143±10	132× or ÷1.07	7.58
79.3	12	45	2.8	92	326±39	286× or ÷1.14	3.50
39.6	10	46	3.0	50	>460	>430	<2.33
19.8	12	[3]	[3]	25	>700	>700	<1.43
m-Bromophenol							
246.	10	45	2.8	100	24±1	24× or ÷1.05	41.7
197.	10	47	3.1	100	23±1	23× or ÷1.03	43.5
164.	12	44	2.6	100	28±1	27× or ÷1.03	37.0
141.	11	47	3.1	100	31±1	31× or ÷1.03	32.3
123.	12	44	2.6	100	39±1	39× or ÷1.02	25.6
98.6	12	46	3.0	100	54±2	53× or ÷1.04	18.9
82.2	21	44	2.6	100	92±4	89× or ÷1.04	11.2
70.4	13	45	2.8	100	115±7	108× or ÷1.06	9.26
61.6	13	45	2.8	100	254±29	219× or ÷1.14	4.57
49.3	14	46	3.0	93	336±23	316× or ÷1.07	3.16
41.1	14	45	2.8	57	>440	>410	<2.44
30.8	14	46	3.0	43	>470	>420	<2.38
16.4	13	[3]	[3]	31	>530	>470	<2.13
9.9	15	[3]	[3]	7	>700	>700	<1.43
8.2	12	[3]	[3]	0	Very slight toxic effect		

p-Bromophenol

160.	12	45	2.8	100	24±1	24× or ÷1.02	41.7
133.	10	45	2.8	100	25±1	25× or ÷1.02	40.0
112.	10	47	3.1	100	38±1	37× or ÷1.03	27.0
100.	11	44	2.6	100	42±1	42× or ÷1.02	23.8
83.3	12	45	2.8	100	57±2	56× or ÷1.03	17.9
62.5	13	46	3.0	100	138±19	109× or ÷1.14	9.17
50.0	13	46	3.0	77	212—373	142—168	7.0—6.0
33.3	12	46	3.0	58	>365	>255	<3.92
5.0	12	[3]	[3]	0	No decided toxic effect		

[1] Estimated from length, which measurement excludes the caudal fin.

[2] The limits of error indicated are probable errors of the means. In the case of the arithmetic means they are differences from the means; in the case of the geometric means they are ratios to the means.

[3] The fishes were not measured but were of the same approximate size.

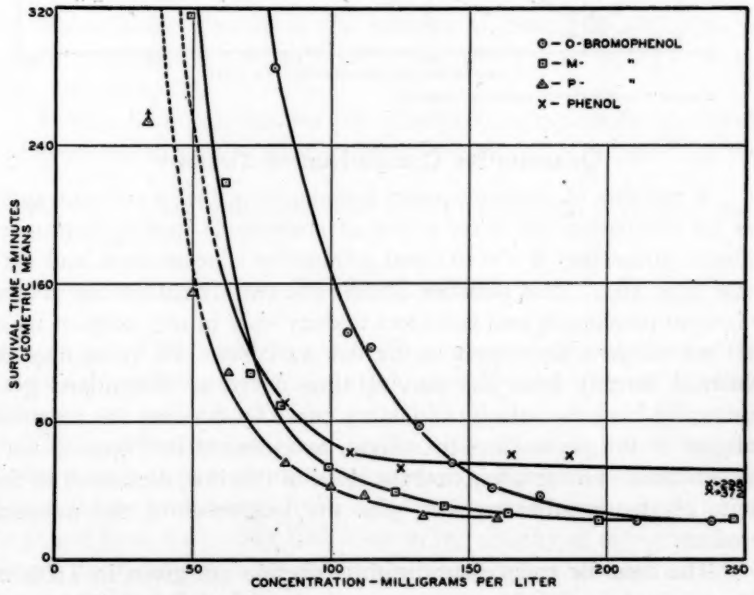


FIGURE 1 — SURVIVAL-TIME CURVES

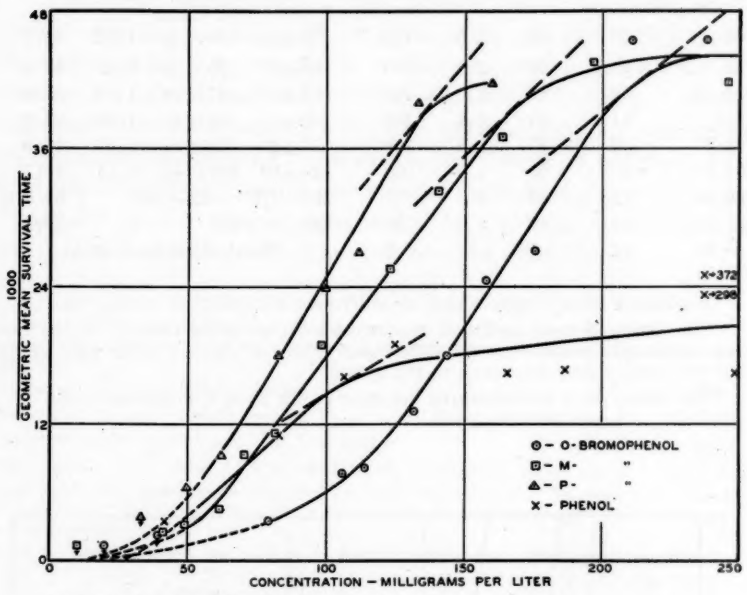


FIGURE 2 -VELOCITY-OF-FATALITY CURVES

Quantitative Comparison of Toxicity

A measure of relative toxicity found serviceable in previous studies for comparing the toxic action of compounds having disproportionate parameters is the minimal product of concentration and survival time (6). This measure ignores the two difficultly determined tolerance parameters and considers toxicity only in the range of most efficient action with respect to the two variables. Its value may be obtained directly from the survival-time curve or determined geometrically from the velocity-of-fatality curve by drawing the maximal tangent to the curve from the origin, as indicated in Figure 2 with broken lines. In the latter case the slope of this line, expressed in the units of the coordinates, will give the reciprocal of the minimal product.

The data for comparison by this criterion are given in Table 2. The minimal product of concentration and survival time is designated by $c_m t_m$ and, since toxicity varies inversely with this value, its reciprocal is also given. Its approximate coordinates, c_m and t_m, are given so that the region fulfilling this condition may be located readily in the

graphs. The data for rotenone and phenol are those obtained from results reported in a previous paper (1).

TABLE 2

RELATIVE TOXICITY OF ROTENONE, PHENOL, AND THE BROMOPHENOLS

Compounds	c_m Milligrams per liter	t_m Minutes	$c_m t_m$ Gram-minutes per liter	Toxicity $\frac{1}{c_m t_m}$ Liters per gram per minute	Relative toxicity according to $c_m t_m$
Rotenone	0.100	215	0.0215	46.5	1.00
Phenol	104	63	6.55	0.153	0.00329
o-Bromophenol	217	24	5.21	0.192	0.00413
m-Bromophenol	168	25	4.20	0.238	0.00512
p-Bromophenol	135	26	3.51	0.285	0.00613

The relative toxicity of the isomers as compared with that of phenol according to this criterion is as follows: ortho, 1.25; meta, 1.56; and para, 1.86.

It may be noted that for the isomers t_m is practically the same and that, therefore, the comparison is one of c_m. The ratios of the values of $\frac{1}{c_m}$ when compared with that of the ortho derivative are: meta, 1.29, and para, 1.61; and for the measure $\frac{1}{c_m t_m}$, meta, 1.24, and para, 1.48. This again is a reflection of the fact that among the isomers the difference in toxicity is essentially a concentration effect alone.

The comparison of these results with those reported for the chlorophenols shows the ratios of relative toxicity of the bromophenols to the corresponding chlorine derivatives to be ortho, 1.08; meta, 1.03; and para, 0.98. The difference in the toxicity of the ortho compounds can be shown to be statistically significant at all approximately corresponding points between concentrations of 80 and 210 mg. per liter. In the other two positions no consistent difference can be demonstrated between the corresponding derivatives over such a wide range of concentrations.

Summary

A study was made of the toxicity of the three monobromophenols with respect to concentration and survival time at 27 degrees, and the results were compared with each other and with those for phenol, rotenone, and the monochlorophenols. Goldfishes of the same lot, weighing between 2 and 4 g. each, were used as the test animals.

The introduction of the bromine atom into the phenol molecule, like that of the chlorine atom and that of the nitro group but unlike that of the methyl group, results in compounds having a markedly different mode of toxic action from that of phenol. Toxicity is affected with respect to both concentration and survival time. However, the change of position of the atom, unlike that of the nitro group but like that of the chlorine atom and that of the methyl group, is accompanied by a change in toxicity very nearly, if not entirely, with respect to concentration alone.

According to the minimal product of concentration and survival time, which measures toxicity in the range of most powerful action, the relative toxicity of the bromophenols as compared with that of phenol is as follows: ortho, 1.25; meta, 1.56; and para, 1.86.

No consistent significant difference was found between the toxicity of the monobromophenols and that of the corresponding chlorophenols except in the case of the ortho position, in which the bromo derivative is slightly the more toxic.

REFERENCES

(1) Gersdorff, W. A., and Smith, L. E.: Effect of introduction of the halogens into the phenol molecule on toxicity to goldfish. I. Monochlorophenols. *Am. Jour. Pharm.,* (1940).

(2) Gersdorff, W. A.: Effect of introduction of the nitro group into the phenol molecule on toxicity to goldfish. *Jour. Cell. Comp. Physiol., 14,* 61-71 (1939).

(3) Gersdorff, W. A.: Relative toxicity of the cresols as demonstrated in tests with Carassius auratus. *Jour. Agr. Research, 54,* 469-478 (1937).

(4) Gersdorff, W. A.: A method for the study of toxicity using goldfish. *Jour. Am. Chem. Soc., 52,* 3440-3445 (1930).

(5) Smith, L. E., and Haller, H. L.: Replacement of the diazo group by the acetoxy group. II. The preparation of m-bromophenyl and m-iodophenyl acetates. *Jour. Am. Chem. Soc., 61,* 143-144 (1939).

(6) Gersdorff, W. A.: A new criterion for the comparison of toxicity with respect to concentration and time. *Jour. Agr. Research, 50,* 881-891 (1935).

THE DETERIORATION OF TINCTURE OF IODINE DUE TO RUBBER STOPPERS

By Joseph F. McDonnell, Jr. and Philip M. Fairlamb
Commonwealth of Pennsylvania, State Board of Pharmacy Laboratory

A CONDITION has been observed by this laboratory, of deterioration of Tincture of Iodine due to contamination of commercial preparations marketed in rubber stoppered applicator bottles. The residue obtained in the official (1) method of assay for iodide content, instead of being white, was quite frequently contaminated with a brownish to black substance. Schaefer (2) has also observed impurities in the residue. Alstodt (3) criticizes the official assay for iodide content for this and other reasons.

In 1938 this laboratory (4) tested 431 samples of Tincture of Iodine obtained throughout the Commonwealth of Pennsylvania. In 1939, 66 samples of the Tincture were tested (5). Of these 497 samples, 149 contained a black contamination in the residue. None of the samples were packaged in glass stoppered bottles.

The 149 samples containing black residue averaged 6.47 gm. of I per 100 cc., and 5.70 gm. of residue per 100 cc. Assuming that the manufacturers started with U. S. P. XI Tincture of Iodine, these results indicate that the black residue is accompanied by a loss of free iodine and a gain in residue.

The black material obtained from the residue is insoluble in water, soluble in chloroform, soluble in benzene, and upon ignition gives off an odor resembling rubber. It is presumably a product of the action of the iodine upon the rubber stopper.

The argument advanced by certain packagers in extenuation of this condition, to the effect that it was caused by internal deterioration of the Tincture, led the writers to examine samples at intervals to determine whether any such lowering of the iodine content occurred on standing for a period of time in glass stoppered bottles.

Sample A. was a composite of a large number of commercial samples.

Sample B. was a preparation of a commercial manufacturer and from which small packages had been commercially bottled.

Sample C. was prepared in this laboratory.

The three samples were placed in ordinary colorless glass stoppered bottles and stored at room temperature on a shelf in the labora-

tory with no precaution taken to exclude light. At intervals 5 cc. portions were withdrawn and titrated with 0.1 N sodium thiosulphate according to the U. S. P. XI method, yielding the following results:

Sample A		Sample B		Sample C	
Date	Gm. I/100 cc.	Date	Gm. I/100 cc.	Date	Gm. I/100 cc.
8–31–38	6.91	11–1–38	7.04	7–28–39	6.94
10–7–38	6.93	5–19–39	7.07	10–20–39	6.98
10–10–38	6.93	6–20–39	7.07	5–1–40	6.94
10–14–38	6.93	10–20–39	7.06		
10–20–38	6.93	12–12–39	7.07		
1–19–39	6.95	5–1–40	7.02		
4–14–39	6.95				
5–18–39	6.95				
10–23–39	7.00				
5–1–40	6.99				

In addition, the residue from sample B. was examined at each date and found to have remained white.

The above results indicate that Tincture of Iodine stored in glass stoppered bottles under ordinary conditions shows no essential change in iodine content or any darkening of the residue over a period of a year and a half.

The official assay for potassium iodide content in our experience has been satisfactory for control analysis, in fact if a titration method had been employed the discolored residue in all likelihood would not have been discovered. Criticism should be directed, not at the method because of the contaminated residue, but at the commercially packaged preparation.

It is the opinion of the writers that glass stoppers meet the U. S. P. requirement for preservation of this product in bottles closed with stoppers resistant to corrosion, and that rubber stoppers do not meet this requirement.

REFERENCES

(1) U. S. P. XI, 400-401.

(2) Schaefer, Hugo H.: *Proc. N. Y. State Pharm. Assoc., 53,* 260 (1931).

(3) Alstodt, Berl S.: *J. A. Ph. A. Sci. Ed., 29,* 227 (1940).

(4) Annual Report 1938, Pennsylvania State Board of Pharmacy Laboratory.

(5) Annual Report 1939, Pennsylvania State Board of Pharmacy Laboratory.

HAS TRUTH IN ADVERTISING BEEN ACHIEVED AT LAST?

By T. Swann Harding

Granite Gables, Falls Church, Va.

IN 1938 Congress passed a law regulating the advertising of foods, drugs, devices, and cosmetics, and in general defining false advertisements as an actionable form of unfair competition in trade under the Federal Trade Commission law. This was accomplished specifically by passage of the Wheeler-Lea Amendment expanding the commission's powers and clarifying its functions.

Since the law went into effect the Commission has worked diligently to purge the advertisements of falsification. Advertisers and their agencies have been in a sort of frenzy, but have usually complied with the Commission's rulings. But a glance at magazines and newspapers, not to mention an ear cocked to the radio, will quickly disclose many misleading advertisements.

Just why is this? Certainly the actions of the Commission have thrown the fear of God into the ranks of the advertisers. Certainly it has been diligent and energetic in getting even very notable and outstanding firms to stipulate that they will desist from specified forms of false advertising statements. But just as certainly the advertising of many things has not been cleared altogether of false and misleading implications. The ads still pull by deceit.

To understand what has happened we must examine the Wheeler-Lea amendment. The Food, Drug and Cosmetic Act which went into effect in 1940, like the act of 1906 it replaced, does not apply to the advertisements of foods, drugs and cosmetics. It covers labels only. Control over advertising remains with the Federal Trade Commission, now newly equipped with the augmented powers the Wheeler-Lea Amendment of March 1938 provided.

The regulation of advertising is not exactly a new function for the Commission. Sometime ago, by means of judicial interpretation of its powers, it construed its function as, in part, to take action against false and misleading advertising because this constituted unfair trade practice or unfair competition. But this ground was rather precarious.

It desired actual legislative enactment empowering it to act against false advertising without necessity for showing unfair competition. A bill providing such power was presented in the Senate

by Senator Wheeler, and it passed March 29, 1937. Then Chairman Lea of the House Committee on Interstate and Foreign Commerce entered the picture.

He proposed so to amend the Federal Trade Commission Act as to give the Commission special power over food, drug, and cosmetic advertising. This was done. The measure reached the floor of the House January 12, 1938.

No advertiser had cause to fear this bill because it involved only an order to stop falsifying—a smack on the wrist and an order to be good now—unless his commodity was intrinsically dangerous or the Government could prove fraudulent misrepresentation. A minority of the House fought to put teeth in the law.

This, however, the House majority and the Federal Trade Commission did not desire. For, as Chairman Lea said, speaking from information supplied by the Commission: "This is not the practical way to deal with business men."

Ultimately the House and the Senate conferees adopted the House bill. The conference report then reached the Senate floor. This was March 14, 1938. The late Senator Copeland realized that it spelled the death knell of adequate regulation of false advertising and said so. He pointed out the bill's weaknesses and sought to have it strengthened. but, without a record vote, the Senate agreed to the report.

Thus it was that the Food and Drug Administration lost to the Federal Trade Commission control over false and misleading advertising. Less scrupulous advertisers had long favored the Commission as against the Administration, knowing of old that the latter was consumer-minded and leaned towards rigid enforcement policies.

Such advertisers were quite certain that the Commission would be much more lenient towards them, regardless of the nature of the law it had to enforce. They even thought its laxity would extend to lethargic enforcement. In that they were much mistaken because the Commission has been extremely active.

Yet, though it seems to have done almost as much as anyone could reasonably expect in the elimination of falsity from advertising —in view of the law with which it has had to work—a careful perusal of the advertising in any newspaper or magazine will show that results have been almost nil from the standpoint of consumer protection.

The cosmetics still unreel their carefully liturgical nonsense, and its exotic lyricism is as seductive as ever. The foods make appeals quite as effective as of old. Above all the patent medicines have managed, by careful utilization of selected verbiage, to make their allure as effective as it was before the Commission got under way.

Resort to such devices as talking about the irrelevant as if it were the pertinent; making factual statements that do not apply to the product or the situation described; and above all the careful use of weasel words in small print, all help. Meanwhile the large capital-letter words stand out just as they always did and few there be who diligently peruse the small-print qualifications which bring all within the law.

The following words, phrases, and slogans, all of which have appeared in advertising very recently, speak for themselves, though it may be just as well for you to attend the words in italics:

Acts to prevent . . .
Helps in the relief of . . .
Hyperacidically induced STOMACH ULCERS yield to . . .
For ulcers *due to acidity*
Get *excess acid* out through the kidneys with . . .
Help purify the blood with . . .
If you need a general system tonic then remember one woman told another . . .
For *functional and inorganic* aches and pains use . . .
In the absence of organic ailments . . .
Corrects acidity *while you brush your teeth with it*
Kills germs *with which it comes in contact*
Kills germs *when used full strength* (it is a gargle, saliva-diluted usually)
We believe it reduces the number of secondary invaders that complicate a cold
This advertisement is addressed *only to those with obesity caused by hypothyroidism* . . .
Has a "booster" action . . .
This dentifrice, gum massage, *and professional care* will *help* prevent dental decay
Wake up your liver bile!
Gives you pep—makes men like you!
For the woman who stands out in crowds, or alone . . .
Results are amazing—will surprise you—you'll be glad you used . . .
In the absence of an organic trouble . . . will build your blood back to normal

Good for the nervous, the run-down, those with poor appetite and slow digestion (all undefined terms easily applied by anyone to himself)
Aid your gums
Helps to remove *surface* stains from teeth
Restores *natural* luster to teeth
Combats overacidity . . . (a medically unknown condition)
Usually cleans out poisons
Tends to stimulate the kidneys . . .
Perhaps your kidneys are to blame for that ache . . .
Pharmacists *can* tell you how good a diuretic . . . is
Should give you soothing relief for skin torture

There is scarcely a factual misstatement in the lot, except relative to the nonexistent medical entity of hyperacidity. Yet there is a great deal of vague nonsense and many of the statements are utterly meaningless. But the appeal is still there. These phrases still seduce. By and large the advertisements make an appeal as effective and as efficacious as ever to the average person guided by advertisements for drugs.

Why, then, has this law accomplished almost nothing in the nature of true consumer protection from false advertising? Why is it destined not to accomplish anything?

The Wheeler-Lea Amendments define a false advertisement as "an advertisement, other than labeling, which is misleading in a *material* respect" and note very carefully that lethal word "material." The repesentations controlled include statements, words, designs, devices, sounds and any combination thereof, which seems to imply radio too.

The statute forbids the dissemination of any false advertisements by mail, their circulation in interstate commerce—or even in intrastate commerce if they are likely to induce, directly or indirectly, the purchase in interstate commerce of food, drugs, devices, or cosmetics. That is what is false. That is what the law forbids.

Now false advertisements are already actionable at common law. They may even entail criminal responsibility under certain circumstances. Especially in cases of proven fraud the advertiser is liable, while the mails can be closed to schemes in the furtherance of artifices to defraud. But such sanctions can be invoked against flagrant frauds only.

We must instead focus our attention upon the above definition of false advertising as that "which is misleading in a *material* respect." Though the Food and Drugs Acts, old and new, do not control advertisements, they do define false labels, and there should be no difference in the definition of falsity in labels and in advertising.

According to these acts a label is false when it contains "any statement, design or device regarding such article, or the ingredients or substances contained therein, which shall be false or misleading *in any particular.*" Again note the italics. Observe how broad this definition is. Remember it is the definition of false advertising that Senator Copeland wanted in his bill. Remember it is the definition of falsity with regard to labels, in the new Food, Drug and Cosmetic Act, and is far more rigid than that of falsity in advertising in the Wheeler-Lea Amendments. The Wheeler-Lea Amendments fortunately do not require the Government to prove fraud, i. e. to show that the advertiser knowingly, willfully, and deliberately used false statements.

But there is a terrific catch in that word "material." A great deal will depend upon the judicial construction placed upon this adjective and the law can be rendered practically nugatory if it be interpreted to advertiser advantage, as it well can be. For the statute is violated only when the advertisement is misleading in a "material respect."

Stated more simply: A statement in an advertisement is "material" only if it is of such importance that it may be said to be the inducing cause of the purchase of the advertised wares by "reasonable" persons; or unless it can be proved that the advertiser knew that the persons to whom the advertisement was addressed would "unreasonably" regard its statements as important—hence be defrauded deliberately.

But how alien to the marketplace is the reasonable man! Would a reasonable person attach importance to the fact that some famous movie star said she used a certain cosmetic or soap? Would he believe that a particular cream would give an aged dowager a schoolgirl complexion, or that a certain dentifrice would restore pristine whiteness to teeth long since jaundiced with senility?

As Milton Handler has said: "It is because consumers are unsophisticated, because they unreasonably attach importance to baseless claims, because they are lured by exaggerations, half-truths, ambiguities and emotional appeals—that legislative protection is re-

quired." We should scarcely need label and advertising laws if all persons were reasonable. The credulous need their protection, however.

A law not designed to protect the weak, the infirm, the unwary, and the easily duped—even the fools—is unsuitable for the purpose. Of course it is generally contended that "an uncompromising standard of truth is sometimes thought to be too Olympian for the clay-footed advertiser." That kowtowing to business is a defeatist attitude.

It assumes that misrepresentation is a habit so inveterate that its total prohibition is impracticable. Hence the field of "immaterial" misrepresentations is left wide open. The careless and the false advertisers may tell as many little fibs as they please just so they do not put in a big whopping misstatement of a material fact. But false advertising can be eliminated only by prohibiting all falsification.

Many little misrepresentations can be quite as effective as one big lie. In this respect it can truthfully be said that the Wheeler-Lea Amendments represent retrogression. As Handler remarks: "Any exemption of puffs or opinion is especially serious in the field of drug advertising, which consists in large measure of therapeutic claims." We have just seen that misleading goes merrily on in this field.

It is possible to establish the truth or falsity of an opinion. Is it backed scientifically or not? Is this therapeutic claim at variance with the general consensus of informed and scientific opinion? Certainly any claims relative to gastric hyperacidity or dietetic or generalized, nonpathological acidosis, are.

When the consumer reads such advertising as was quoted above it is natural for him to feel that the advertiser has support for his medical assertions. The advertiser should therefore be made to prove they are true. Unless he has such support the claim should be forbidden. Some concession should be made, of course, when respectable scientific opinion is in disagreement.

Even the advertising profession itself—the Association of National Advertisers and the American Association of Advertising Agencies in 1932—has gone further than this new law in setting up at least theoretical prohibitions of all false statements or misleading exaggerations—even frowning on it when indirect and through distortion of details. The Fair Practice Code of the National Association of Better Business Bureaus does better. It says—

"No statement or representation shall be used in advertising which has the capacity or tendency to mislead or deceive the consumer. This shall include generalizations and implications."

The advertising index expurgatorious of such newspapers as the *New York Times* and the *St. Louis Post-Dispatch* goes further than the Wheeler-Lea Amendment. True, all these privately announced codes were not adhered to conscientiously, but they indicate that advertisers and business were ready for more rigid regulation than they got.

This law leaves the exact limits to exaggerated claims, puffs, therapeutic claims and statements of opinion a matter of conjecture. Its phraseology is ambiguous. It sets up no final test to be used for the justification of claims of therapeutic effects. No matter how conscientiously the Commission works with it, and it has set to work hard, it is bound to fail in every large sense.

The law also applies a different standard to advertisements disseminated solely to physicians. Such advertising is held false only if it contains a false misrepresentation of a material fact and is not accompanied by truthful disclosure of the quantitative formula of the drug preparation. If there is such disclosure and if there is no down-right lie—misleading impressions here are immune. Just why they should be tolerated here when doctors themselves are so credulous it is difficult to understand.

Furthermore the consumer needs not only to be protected from false statements in advertising. He is in need of positive information. Advertisements should be required to be other than vague and meaningless nonsense. They should be compelled to give full disclosure of such pertinent information as the consumer needs to buy intelligently.

Certainly a direct effort should have been made also to outlaw the common and notorious misleading therapeutic claims made in patent medicine advertising. They still appear but faintly disguised. Many remedies are still advertised for diseases for which no specific is known or in which general medication is concededly useless.

Of what use is it merely to placate symptoms of a serious disease? Why permit a nostrum advertiser to take the legal curse off his claims by insisting that his dope is merely for "functional" or "symptomatic" relief, or "helps" in the treatment of soandso? There should be an express prohibition of all such claims. It should be founded upon noncontroversial scientific knowledge.

Under the Wheeler-Lea legislation the Federal Trade Commission may, when confronted with false advertising: 1, issue a cease and desist order; 2, under certain limited circumstances bring suit in a District Court to restrain dissemination of the advertisement; 3, institute criminal proceedings in still more limited cases.

Its sanctions, therefore, are woefully weak. It must first make an investigation of the advertisement, even before it issues a preliminary complaint. It must be satisfied that it has grounds to proceed. That takes plenty of time. Hearings cannot be held sooner than thirty days after service of the complaint.

Various judicial requirements tend to prolong the hearing. The examiner must take the matter under advisement and prepare his report. The case is then put on the Commission's calendar for argument. After argument, findings of fact and a cease and desist order must be prepared. Sixty days more must elapse before the order becomes binding. Meanwhile the advertiser has used the challenged advertising to the limit; he discards it and embarks on a new and equally deceptive campaign.

Hence the proceedings may begin to relate to a controversy that has become moot. A cease and desist order does not penalize the advertiser for past derelictions. It does not prevent him from indulging in new but different misrepresentations. It permits him, in fact, to play fast and loose if he wishes and is so disposed. He reaps the profits of one set of misrepresentations till compelled to desist, then cashes in on another set.

In short: A prohibition that operates prospectively, and then only after a considerable lapse of time, and which carries no penalties, cannot be expected to have much deterrent effect. As Handler says: "The conclusion is inescapable that the 'cease and desist' procedure, in and of itself, is an insufficient curb on false and misleading advertising."

Hampering restrictions are placed upon the injunctive machinery by the statute. A temporary injunction can be sought by the Commission only when such relief "would be to the interest of the public," which implies that restraint of any false advertising is not necessarily in the public interest in all cases, which is absurd. The injunction lapses if the Commission fails to prosecute its complaint.

Hence the case must be heard before the District Court to get the injunction, then tried over again before the Commission independently. Appeals may be taken from final orders of the Com-

mission or from the decision of the Circuit Court. Hence two hearings and two appeals loom.

The statute makes the violation a misdemeanor, punishable by imprisonment not exceeding six months, or by a fine of not more than $5000 for the first offense, and by imprisonment of a year and a fine of not more than $10,000 for a subsequent offense. But this occurs only when the use of the article advertised may be injurious to health, or if there is intent to defraud or mislead—which is always almost impossible to prove.

With the qualifications and exemptions that hedge it about, the criminal provisions of the legislation are weak indeed. Moreover a manufacturer who both misbrands and falsely advertises his product can only be stopped after two proceedings by two separate agencies of the Government—Food and Drug Administration and Federal Trade Commission.

Naturally one special agency of the government, staffed with qualified experts, and armed with effective sanctions, should enforce the law relative to both labels and advertisements. Only thus could efficiency and effectiveness be achieved. Even then the existing laws do not go far enough.

We work on the principle of letting the products, the labels, and the advertisements get before the public, and then taking action. We have yet to learn that false advertising must be attacked at its source. "It is much more important to prevent the dissemination of false advertisements than to punish the advertiser after publication."

Hence the center of infection is the advertising medium, the newspaper, the magazine, the radio station, the publisher, the advertising agent. Publishers and broadcasting companies both engage in business that is clothed with public interest today. It is their definite obligation to prevent the contamination of their communication to the public by false advertising.

We pay a great deal of attention to what can and what must not be taught in our public schools. We exercise almost no supervision at all over that what young children hear in radio programs. This in spite of evidence with which every parent is familiar that the children are constantly corrupted by the most maliciously mendacious radio advertising propaganda.

The profits of this deception accrue to the publisher and to the broadcasting company. It is within their power easily to prevent deceptive advertising. It is within their power to demand the

affirmative disclosure of vital information regarding the product advertised. We need a law to compel publishers and broadcasting companies to perform their public duty.

Advertisers should also be instructed how to advertise. They should have positive information, not only prohibitions, for guidance. They should be told, since they do not know, what it is right and proper for them to say, not always denounced for falsity and ignorance. Rules and regulations should be set up affording affirmative guidance for this purpose. The apparent ignorance of the truth from which advertisers suffer should be remedied educationally.

Finally, it is generally true that in the matter of misbranding and false advertising the Government bears the burden of proving that what the manufacturer says is untrue. Why must it always be required to establish its allegations? What hardship would there be in compelling the manufacturer and advertiser—who supposedly has peculiar knowledge of the facts—to prove the truth of his assertions?

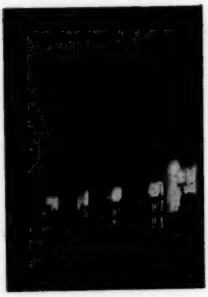
We have very definite scientific and medical information on many subjects. This information is no longer controversial. All properly qualified specialists are quite thoroughly agreed upon its authenticity. Whenever a label or an advertisement comes in conflict with this body of verifiable knowledge it should per se become violative and be prohibited.

We have, need, in fact, for boards of qualified experts to make hearings in such technical cases. Their fact finding should be final. The courts should only apply the law. Cases could be disposed of rapidly. Time and taxes would be saved. The consumer would be effectively protected.

We may in concluding quote Milton Handler's concluding paragraph ("The Control of False Advertising Under the Wheeler-Lea Act" in the Winter 1939 *Law and Contemporary Problems,* of which much use was made herein):

> "While the Wheeler-Lea Act represents a sincere attempt to stem the avalanche of false and misleading advertising, it is no more than a first, and unfortunately, inadequate step in that direction. Unless buttressed by clarifying amendments broadening its prohibitions and implementing it with effective sanctions, it will not effect an abiding solution of the vexing problem of false and misleading advertising."

THE PHILADELPHIA » » COLLEGE OF PHARMACY AND SCIENCE » » »



THE ONE HUNDRED AND EIGHTEENTH ANNUAL COMMENCEMENT

THE 118th Annual Commencement was held in the College Auditorium the evening of June 5th in the presence of a large audience. The invocation was pronounced by the Reverend H. W. Myers, Jr., of Pilgrim Congregational Church, Philadelphia. Candidates for degrees were presented to President Wilmer Krusen by Deans Ivor Griffith and J. W. Sturmer. Degrees in course in Pharmacy, Chemistry, Bacteriology, and Biology were conferred upon 81 students.

The degree of Doctor of Science, *honoris causa,* was conferred upon Dr. Louis Gershenfeld, professor of bacteriology and hygiene at the College in recognition of his long and valuable service to the profession serving public health.

The degree of Master of Pharmacy, *honoris causa,* was conferred upon:

Joseph F. McDonnell, Sr., Jenkintown, Pa., retail pharmacist, and

Robert P. Scherer, Detroit, Mich., chemist and inventor.

The commencement address was prepared by Dr. John J. Shaw, Secretary of Health of the Commonwealth of Pennsylvania, but in his absence, due to serious illness, the address was read by his colleague on the Pennsylvania State Board of Health, Dean Ivor Griffith.

Degrees in course, certificates and prizes were conferred as follows:

DOCTOR OF SCIENCE IN BACTERIOLOGY

Bernard Witlin

DOCTOR OF SCIENCE IN PHARMACY

Madeline Oxford Holland

MASTER OF SCIENCE IN BACTERIOLOGY

Carmen Giselda Vargas
Werner Walter Wilhelm Ruthenberg

MASTER OF SCIENCE IN PHARMACY

Luther Martin Burton
Dorothy Louise Collins
Khasem Pangsrivongse
Gilberto Rivera Hernandez
Joseph Nicholas Sedor

BACHELOR OF SCIENCE IN CHEMISTRY

William Bandaruk
Caspar Becker
Sheppard Campbell Cummings
Joseph John Fitzpatrick
Arthur Hinson, Jr.
Edward Ivins, Jr.
Marvin Lane
Theron Lee, Jr.
Arnold David Lewis
Charles Mitchell Mitchell, Jr.
Raymond Henry Pietrzycki
Edward Achille Pizzi
Samuel Louis Ross
Esther Ruth Singmaster
Robert Place Sparkman
George Austin Weisgerber
John Milton Young

BACHELOR OF SCIENCE IN BACTERIOLOGY

Edwin Allan Brosbe
Melvin Curtiss Firman
Helen Vivian Forman
Richard Arnold Garman
Clayton Emmons Matthews
Velma Lenore Meckley
Jeanette Marian Pinsky
Elizabeth Cahall Scott
Milton Shon
Roland Woodward

BACHELOR OF SCIENCE IN BIOLOGY

Daniel James DeBellis

BACHELOR OF SCIENCE IN PHARMACY

E. Eugene Blakely
Carmen Anthony Carrato
Eugene Leonard Cohen
Morris Cohen
Raymond David Entine
Isadore Fine
Murray Finkelstein
Reuben Frankel
Goldie Freedman
Ellis Gadol
Marshall Frank Garzarella
Isadore Albert Goldis
Joseph Greenberg
Raymond Earl Hall
Charles William Head
Robert Gordon Johnson

Lydia Clare Juresco
Ralph Irving Kohn
Eli Kremer
Elizabeth Kriebel
Richard VanDerlyn LaRue
Albert Magen
Edwin Alvin Mandel
William Kenneth Mears
Nathan Norman Nicholson
Edward Leroy Plumb, Jr.
Harry Rasansky
Charles Samuel Redline
Ross Wesley Ritter, Jr.
Harry Thomas Rubino
John Eberle Ryan
Jack Wetzel Shotsberger
Henry Silver
Daniel Alexander Sinskie
Joseph Ambrose Skrickus
Frank Bishop Spare
Hymen Allan Stein
Max Tepper
Howard Pete Vaughn
Earle Wellington Weiss
Daniel Lowry Wertz
Ralph Williams, Jr.
Frederick Zevin
James Alfred Zimmerman

CANDIDATES WHO HAVE COMPLETED SPECIAL COURSES AND HAVE QUALIFIED FOR CERTIFICATES

(This does not include students who completed courses in these subjects for credits for a degree)

For Certificates in Clinical Chemistry

Ethel Sofronski
Barnett Steinsnyder
Leopold Vaccaro

For Certificates in Bacteriology

Barnett Steinsnyder
Leopold Vaccaro

AWARD OF PRIZES

Designated as "Distinguished"
With General Average 90% or Over

Bachelor of Science in Pharmacy

Eugene Leonard Cohen
Ellis Gadol
Isadore Albert Goldis
Charles William Head
Robert Gordon Johnson
Ralph Irving Kohn
Nathan Norman Nicholson

Bachelor of Science in Chemistry

Joseph John Fitzpatrick
Marvin Lane
Samuel Louis Ross
Esther Ruth Singmaster
George Austin Weisgerber
John Milton Young

Designated as "Meritorious"
With General Average Between 85% and 90%

Bachelor of Science in Pharmacy

Isadore Fine
Reuben Frankel
Lydia Clare Juresco
Harry Thomas Rubino

BACHELOR OF SCIENCE IN CHEMISTRY

William Bandaruk
Sheppard Campbell Cummings
Arnold David Lewis
Charles Mitchell Mitchell, Jr.
Raymond Henry Pietrzycki

BACHELOR OF SCIENCE IN BACTERIOLOGY

Edwin Allan Brosbe
Melvin Curtiss Firman
Richard Arnold Garman
Velma Lenore Meckley
Jeanette Marian Pinsky
Elizabeth Cahall Scott
Milton Shon

The PROCTER PRIZE, a gold medal awarded to the B. Sc. candidate in Pharmacy having the highest average of the class. Earned by:

ELLIS GADOL

Honorable Mention to

Isadore Albert Goldis
Ralph Irving Kohn
Nathan Norman Nicholson

The FRANK GIBBS RYAN PRIZE, a gold medal endowed by the Class of 1884, as a memorial to their distinguished classmate, for the best average in the Chemical and Pharmaceutical Laboratory Courses, is awarded to:

ELLIS GADOL

Honorable Mention to

Charles William Head
Robert Gordon Johnson

The WILLIAM B. WEBB MEMORIAL PRIZE, twenty dollars and a bronze medal for the highest average in the branches of Operative Pharmacy, Analytical Chemistry, and Pharmacognosy, is awarded to:

NATHAN NORMAN NICHOLSON

Honorable Mention to

Ellis Gadol
Eugene Leonard Cohen

The FREDERICK WILLIAM HAUSSMANN MEMORIAL PRIZE of one hundred dollars, given to the Pharmacy student with the highest average for the last three years of the course, is awarded to:

ELLIS GADOL

Honorable Mention to

Charles William Head
Robert Gordon Johnson
Nathan Norman Nicholson

Gold Medals awarded by the Alumni Association to the student of the B. Sc. Class in Pharmacy and to the student of the B. Sc. Class in Chemistry, in Bacteriology, or in Biology, who attain the highest scholastic averages, are awarded to:

Bachelor of Science in Pharmacy .....ELLIS GADOL
Bachelor of Science in Chemistry .....JOHN MILTON YOUNG

The REMINGTON MEMORIAL PRIZE, twenty dollars, offered by the Estate of Joseph P. Remington, for the highest average in the examination of Operative Pharmacy and Dispensing, is awarded to:

CHARLES WILLIAM HEAD

Honorable Mention to

Eugene Leonard Cohen — Ellis Gadol
Nathan Norman Nicholson

The MAHLON N. KLINE THEORETICAL PHARMACY PRIZE, fifty dollars in cash, offered by the Mahlon N. Kline Estate, for the highest average in Theory and Practice of Pharmacy, is awarded to:

NATHAN NORMAN NICHOLSON

Honorable Mention to

Eugene Leonard Cohen — Charles William Head
Ellis Gadol — Robert Gordon Johnson

The MAISCH BOTANY PRIZE, a special prize of twenty dollars, offered by Sinclair S. Jacobs of the Class of 1909, to the member of the graduating class who shall have presented the best herbarium collection of plants, or the best thesis on the microscopical structure of medicinal plants, is awarded to:

EDWIN ALVIN MANDEL

A prize of twenty-five dollars, offered by THE WOMEN'S AUXILIARY OF THE DAUPHIN, CUMBERLAND AND LEBANON COUNTIES PHARMACEUTICAL ASSOCIATION, to the girl graduating with the highest average:

LYDIA CLARE JURESCO

The AMERICAN INSTITUTE OF CHEMISTS' AWARD to:

JOHN MILTON YOUNG

Three prizes offered by Lester F. Widman, '20, and Philip A. Teah, '21, for proficiency in Business Subjects:

First Prize of $25 to .....MAX TEPPER
Second Prize of $15 to .....ROBERT GORDON JOHNSON
Third Prize of $10 to .....ELLIS GADOL

The ALPHA SIGMA PRIZE, twenty dollars in books, offered by honorary members of the Alpha Sigma Society, to the candidate graduating with the degree of Bachelor of Science in Chemistry with the highest scholastic average for the four years. Awarded to:

JOSEPH JOHN FITZPATRICK

Honorable Mention to

Marvin Lane
Esther Ruth Singmaster
George Austin Weisgerber
John Milton Young

PHILADELPHIA COLLEGE OF PHARMACY AND SCIENCE STUDENTS VISIT MANUFACTURING PLANTS

THE senior students of the Philadelphia College of Pharmacy and Science as an appropriate conclusion to their four years study visited several of the larger drug manufacturing establishments throughout the country.

They were the guests of the Eli Lilly and Company at Indianapolis where they were conducted through the various laboratories of that firm. In Detroit Parke, Davis and Company acted as hosts and demonstrated their manufacturing and research facilities.

Upon their return east the Brooklyn plant of E. R. Squibb & Sons was visited followed by a tour of inspection through the biological division and the new Squibb Institute of Medical Research at New Brunswick.

The following week Sharp & Dohme took the group through its large Philadelphia building and the biological laboratories at Glenolden, Pa.

ABSTRACTS FROM AND REVIEWS OF THE LITERATURE OF THE SCIENCES SUPPORTING PUBLIC HEALTH

Protective Ointment for Prevention of Poison Ivy Dermatitis. L. Schwartz, L. H. Warren and F. H. Goldman. *Pub. Health Rep. 55,* 1327 (1940). Rhus poisoning constitutes by far the largest percentage of plant dermatoses. Field workers such as farmers, horticulturists, gardeners and men enageged in clearing land are frequently afflicted according to the records of State Compensation Boards.

In many instances desensitizing injections of rhus toxin are more or less impracticable because they must be instituted some time before work in the field is begun and because the labor turn-over on many projects would make it necessary to be continually desensitizing new men and render valueless as far as the work is concerned the injections given to the men who leave.

The prevention of rhus poisoning by the use of potassium permanganate or ferric chloride solutions has been open to objection because of the stains produced by the former and persistent pigmentation of the skin by the latter. The active principle of rhus is urushiol a mixture of o-dihydroxybenzenes with a normal 15 carbon side chain in position 3. It is well known that potassium permanganate renders urushiol harmless due to its powerful oxidizing effect. The authors have investigated the efficacy of several colorless, non-staining oxidizing agents both in solution and ointment form.

A vanishing cream base (potassium stearate) containing 10 per cent. sodium perborate or potassium periodate was found to be an effective preventive against poison ivy dermatitis. It is recommended that it be rubbed well into the skin of the arms and face before exposure. At the noon hour it should be removed by washing with soap and water and a fresh portion applied before re-exposure in the afternoon. The cream must be freshly prepared and not used after 2-3 weeks since it deteriorates on storage. L. F. T.

Clinical Results of Immune Human Placental Globulin in Prophylaxis of Measles. H. N. Bundesen, W. I. Fishbein, I. R. Abrams and R. D. Miller. *J. A. M. A., 115,* 104 (1940). In 1938

more cases of measles were reported in Chicago than any year since the disease was made reportable. Apparently there is a trend toward more cases probably because of better reporting.

Convalescent measles serum although distributed in Chicago is not always easily available. The authors have carried out a controlled study of the relative merits of immune globulin and convalescent serum.

Six hundred seventy-eight susceptible measles contacts were inoculated with immune placental human globulin, 52.1 per cent. failed to contract measles. Of those contracting measles 90.1 per cent. had the disease in modified form. Thus the total receiving some degree of protection was 95.2 per cent. Two hundred twenty-nine susceptible measles contacts were inoculated with convalescent measles serum 73.24 per cent. failed to contract the disease. Of those contracting measles 92.5 per cent. had the disease in modified form. Serum therefore offered some degree of protection to 97.9 per cent. Of a control group of 328 susceptible children only 26.6 per cent. failed to contract the disease. Of those who contracted the disease 76.6 per cent. had a mild form. Thus the total protection in the control group was 82.9 per cent.

In a study of the severity of the symptoms in the three groups it was shown that in those receiving serum and contracting the disease 26.3 per cent. were free from prostration, in those receiving globulin 21.1 per cent. were free from prostration but in the control group only 2.6 per cent. remained free from prostration.

It is evident that, although convalescent serum is somewhat more effective, the use of immune globulin is quite effective and due to its greater availability it may be used in large outbreaks. L. F. T.

"Chigger Mites" Their Method of Attack, Treatment, and Prevention. *Pub. Health Rep. 55,* 1312 (1940). Chigger mites or "chiggers" are the larval forms of various species of mites belonging to the family *Trombidiidae,* commonly known as harvest mites. Many different species of chiggers are known to attack vertebrate hosts but only two attacking man have been recognized from the United States, one, the common North American chigger and the other a closely related form found in the northern part of the Mississippi Valley.

Description.

The chigger or larva of the common North American species is oval, bright red, and as in the first or larval stages of all mites possesses only three pairs of legs. In the unfed condition it measures about 150 microns in width and is scarcely visible to the naked eye. The adult is a large red hairy mite with the usual four pairs of legs. Unlike the larval form it is not parasitic but is a scavenger living largely on the fecal matter of arthropods and on woody decaying substances. Eggs are laid in the ground and the chiggers hatch in the spring soon after warm weather begins.

Chiggers may be encountered from the latter part of April to the last of October. The North American chigger is not only a pest of man but it has been reported as attacking a wide range of vertebrates. It is an important pest of poultry frequently causing the death of young chickens.

Method of attack.

Chiggers attach themselves to the surface of the skin by means of their mouthparts and feed much as do ticks. They apparently feed upon epidermal tissue liquefied by a secretion which they themselves inject into the skin. When they become fully engorged they drop off. Although it is widely believed that chiggers burrow into the skin and embed their entire body, this method of attack must be extremely uncommon. The liquefying secretion injected produces an intense itching and this is followed by a wheal or papule surrounded by an inflamed area. The papules may be surmounted by a pinhead-sized vesicle containing clear fluid. The itching generally reaches its maximum on the second or third day then gradually subsides though it may persist intermittently for several weeks. Scratching may result in secondary infection and if the lesions are numerous, fever, headache and temporary nervous upset may result.

Treatment and prevention.

After exposure the skin may be examined for active larvae preferably with a hand lens. However, they are so minute and they move so rapidly over the surface before attachment that it is difficult to capture them. The application of kerosene or 95 per cent. alcohol will kill the larvae rapidly. As soon as possible after exposure it is advantageous to apply a thick lather of soap to the affected parts allowing it to remain for 10 minutes or more before bathing. Even

though the larvae are removed soon after attachment, usually enough of their secretion has been introduced to cause the characteristic itching lesion and for this there is no known specific remedy. The intense itching is temporarily relieved by ammonia or strong salt water, or a calomel-phenol lotion. Collodion containing metaphen applied to the lesions is recommended both to relieve itching and prevent infection. The sprinkling of stockings and underclothing with sublimed sulfur helps prevent infestation when exposure is necessary. L. F. T.

Inefficiency of Calomel Ointment as a Venereal Prophylactic. R. A. Nolan, *Northwest Med. 39,* 253 (1940). At the present time many individuals are victims of gonorrhea induced through faulty attempts at prophylaxis. It has been observed that this infection occurs very frequently in individuals who following exposure use simply Calomel Ointment N. F. While this precaution is highly effective as an antisyphilitic measure it is not only ineffective against gonorrhea but actually self-induction of infection occurs through its use. As the ointment is injected into the urethra if infectious material is at the meatal opening it is forced into the canal for a depth of one to two inches preceding the ointment resulting in an acute anterior urethritis.

Chemical prophylaxis as practiced in the United States Navy recognizes this danger and requires in addition to the immediate use of calomel ointment, treatment at a prophylactic station with a silver protein solution. The inconvenience of this two-fold requirement is apparent and the author reports on the clinical effectiveness of a portable two preparation prophylactic package. This consisted of a soap, a 0.5 per cent. silver picrate jelly in a collapsible tube accompanied by a tube of Calomel Ointment N. F. The directions to be followed were as follows:

1—Urination immediately after exposure.
2—Washing thoroughly with soap and water.
3—Intraurethral injection of silver picrate jelly.
4—Intrameatal introduction of calomel ointment.
5—Thorough inunction of surrounding tissues and area with calomel ointment.

In 940 cases of exposure to venereal infection not a single case of specific or non-specific urethritis resulted following this treatment

whereas in another series of cases during the same period and following exposure in the same district and using the faulty methods of prophylaxis the incidence of both syphilis and gonorrhea was very extensive. L. F. T.

A Further Study of the Effect of pH on the Properties of Commercial Antiseptics. W. A. Bittenbender *et al. J. Ind. & Eng. Chem., 32,* 996 (1940). Since the time of Pasteur it has been known that acidity has an effect on the growth of some bacteria. Subsequent work has definitely shown that bacteria are affected by acidic media and that some compounds are often more highly bactericidal in acidic media.

This paper reports on further studies insofar as the effect of pH is concerned on the bactericidal properties of commercial antiseptics. Those tested were amphyl, chorazene, gentian violet, Listerine, Lysol, malachite green, mandelic acid, Mercurochrome, Mercurophen, methylene blue, Pepsodent antiseptic, potassium dichromate, potassium permanganate, sodium nitrite, zinc sulfate, Zonite and Sulphonmerthiolate. The test organisms were *Eschericia coli* and *Staphylococcus aureus* and the pH range was from 3 to 8 except in the case of Mercurochrome, Merchurophen and zinc sulfate in which the pH was not adjusted. In general the activity was definitely enhanced by an increase in hydrogen ion concentration and this effect seems to be independent of the molecular structure of the antiseptic. L. F. T.

Calcium and Phosporus Metabolism in Rats and Dogs as Influenced by the Ingestion of Mineral Oil. M. C. Smith and H. Spector, *J. Nutrition 20,* 19 (1940). Although conclusive data showing the interference of mineral oil with the utilization of vitamin A both as such and in its precursor form carotene have been offered, the evidence on the effect of mineral oil ingestion upon the availability of vitamin D is conflicting. Much of this evidence has resulted from a search for the best diluent for vitamin D concentrates.

This paper presents results on the influence of mineral oil ingestion by both rats and dogs on their metabolism of calcium and phosphorus. This was done in rats by comparing the degree of calcifica-

tion of rachitic lesions (as shown by the "line test") afforded by various levels of vitamin D fed as cod liver oil in the presence and absence of mineral oil. In dogs, continuous calcium and phosphorus balance studies were conducted for 11 weeks.

Mineral oil interfered with the utilization of vitamin D fed separately as cod liver oil to such an extent that three times as much cod liver oil was necessary to induce healing of the rachitic lesions of rats when the basal ration contained 5 per cent. mineral oil and between five and ten times as much was needed when 10 per cent. mineral oil was incorporated in the basal ration.

The balance studies on dogs showed that mineral oil ingestion by young dogs interfered with the retention of both calcium and phosphorus so seriously that normal calcification of the bony structure was not possible. The mineral oil fed dogs showed the characteristics of severe rickets even though they received adequate amounts of calcium and phosphorus and were given a supposedly minimum protective dose of cod liver oil. Increasing the amount of cod liver oil five times did not provide for optimal retention of the mineral elements in the dog receiving the ration containing 10 per cent. mineral oil. L. F. T.

SOLID EXTRACTS

By Ivor Griffith, Ph. M., Sc. D., F. R. S. A.

Despite the form in which this information is presented it may be accepted as trustworthy and up-to-date. Original sources are not listed but they may be obtained upon request.

The God of War is grinning, and the roupy, croupy dove of peace is moulting and mooning in Hitler's hay-loft. For the Nobel Peace Prize is now a Nazi perquisite. The Nobel prizes were the outgrowth of the discovery of dynamite, and although described somewhere as sedatives for Nobel's conscience, they have come to be highly regarded the world over. The list of Nobelists is a singularly successful roster of scientific, literary and humanitarian immortals.

Swedish institutions administer these famous prizes in physics, chemistry, medicine and physiology and literature, while a special committee of the Norwegian Storting or parliament, awards the Nobel Peace Prize.

With German troops in control of Norway, there is no possibility of the awarding of a peace prize, to be presented with appropriate ceremonies next December 10th, Alfred Nobel's birthday. Herr Hitler is not in favor of the kind of peace the prizes represent.

Do you want to keep your picket fence or cellar wall or stuccoed or shingled house front really white? Then add to your water or oil paint about ten per cent. of titanium dioxide (oxide). For outside paint containing this chemical literally washes itself under the action of wind, rain and sun. It does this by accumulating a fine powder on its surface. As dust and dirt from the atmosphere settle on this surface, they are readily washed away by wind and rain, exposing fresh, clean paint. Only a minute amount of paint is removed each time, so the finish is left well protected.

Here is another instance of a bane turned boon. A protein-digesting enzyme, resembling pepsin in its action, has been found in the troublesome weed known as horse nettle or bull nettle by two University of California scientists. It is like the digestive compound

found in the subtropical fruit papaya, known as papain, and because the weed's generic name is *Solanum,* the newly discovered substance has been given an analogous name, solanain.

Papain has long been used as a medicine for indigestion, and as a meat tenderer, and it is regarded as possible that solanain may prove useful in the same ways.

Solanain is more resistant to heat than other digestive enzymes. It can stand temperatures up to 80 degrees Centigrade without losing its digestive powers, and it is also resistant to certain destructive chemical treatments.

Curiously enough, Southwestern Indians have long made use of the weed's protein-digesting ability without having any inkling of its scientific basis. They have used the juice of the berries to curdle milk into a kind of cheese.

If it becomes desirable to cultivate horse nettles as a source of enzyme for medical or industrial use, there need be no worry about supplies. The weed is widespread in this country, and is rated as one of the worst cornfield invaders in the Midwest. Not even pigs will eat it, because of its long, sharp thorns and its bitter taste.

We find at long last a logical solution to why moths, and how moths get at our winter woolies though kept in what we consider hermetically sealed closets. An opening only four thousandths of an inch wide is large enough to admit a newly hatched clothes moth larva, according to Wallace Colman of the Bureau of Entomology and Plant Quarantine. His tests show that a larva just out of the egg can crawl through an opening no wider than the thickness of a sheet of good quality bond paper. Most newsprint paper is slightly thinner.

And so—when a flying moth finds the opening to a box of woolens too small to get through herself, she lays her eggs in the crack. The tiny larvae that hatch in a few days have no trouble crawling into the box and getting at their food supply of woolens. To keep clothes safe in a chest or trunk seal all cracks with gummed tape. For extra precaution, keep plenty of moth flakes in with the clothes.

The Saturday night bath does not seem quite so insanitary and infrequent when we learn on good authority that Parisians average

one bath every four months and residents of Moscow one in eighteen months. In London, where the population is a bit thick, bathing is alleged to be as frequent as tea-sprees. But the Japanese with their custom of daily baths seem to hold the record for cleanliness, while many other peoples, such as the Laplanders and Eskimos, do not bathe at all. On the deserts of Arabia, where the water is necessarily used only for drinking, the "bath" consists of rubbing oneself with sand.

It is a consolation, however, to recall that since the United States owns 95 per cent. of all the bathtubs, bathing in most parts of the world must be carried on largely with other equipment—or not at all.

Who reads the following, thoughtfully, must admit that instinct serves the animal more wisely than so-called sense serves man. Rats like alcohol, but not very much of it at a time, experiments at the Johns Hopkins Hospital indicate.

The experimenters gave their laboratory rats two drinking bottles in each cage. At first both contained only water. Then alcohol in gradually increasing percentages was added to one of the bottles.

The animals showed a decided preference for the alcohol mixture in concentrations of from 1.8 per cent. to 4.4 per cent. (Beer percentage!!) From there on up, their taste for "liquor" slumped sharply, and above 6 per cent. concentration they took very little of any of the alcohol mixtures, staying on the "water wagon" practically all the time.

In terms of beverages favored by humans, this would limit the rats' choice to beer or to thrice-watered wine. Only one rat in a group of seventeen was a complete teetotaler, always preferring water to even the weakest of the alcohol solutions.

Earlier experiments with rats in the same laboratory have produced evidence that the animals actually use the alcohol supplied in weak solutions to meet a part of their food requirements. Given alcohol in their drinking water, they left uneaten amounts of food supplying an equivalent number of calories.

And there will be the occasional reader, no doubt, whose ungracious comment will be "Rats"!!

BOOK REVIEWS

Done by persons, unafraid to upbraid, but perfectly willing to give praise where praise is really due.

Modern Cosmeticology: The Principles and Practices of Modern Cosmetics. By Ralph G. Harry, F. I. C., F. R. M. S., A. R. P. S. The Chemical Publishing Co., Inc., 148R Lafayette St., New York City. 1940. Cloth bound, 288 pages, including index. Price: $5.00.

The author is British, and the book is accordingly so *coloured*. Dozens of proprietaries of British and American origin obscure many of the otherwise intelligible formulas. For instance, what are

Pink 15,220
Emulgator 157
Saponin C
Cosmex butter
Satol
Manucol V
Corol
Acimul, etc.?

One suspects all through that there has been some profound American editing of Mr. Harry's work, for there are many trade-named but not divulged components of certain American manufacture throughout the book, and to the exclusion of some domestic products of high caliber and proven merit.

This conglomerate of British and American trade-named items makes the book much less valuable than it might be.

The scope of the book is wide and its up-to-dateness is verified in the inclusion of many of the most modern additives to cosmetic agents.

Despite the criticism made earlier in the review this book is well worth its price, for it does not stop with formulas and "modus operandi," but fruitfully and accurately deals with the scientific and therapeutic phases of Cosmetology.

IVOR GRIFFITH.

The Era Key. The Haynes and George Publishing Co., Newark, N. J. Price: $1.00.

Quiz compends and keys have been in bad repute for some time, largely because teachers disapproved of them. And there were grounds for this objection. Too frequently, students(?) relied too heavily upon them,—missing the lasting information and inspiration of class work in lecture and laboratory for the sake of canned and concentrated facts, which all too readily dissipated with time. However, if quiz compends and keys have to be, it is well and safe that they be accurate and complete. A rather cursory viewing of the new Era Key does give an impression that it has been carefully compiled.

IVOR GRIFFITH.

Applied Mycology and Bacteriology. By L. D. Galloway, M. A., and R. Burgess, M. Sc., Ph. D. The Chemical Publishing Co., Inc., 148 Lafayette St., New York City. 186 pages, including index. Price: $4.00.

"Applied Mycology and Bacteriology" presents a summary of the subject with particular reference to the recognition, handling, and control or suppression of the micro-organisms of special interest to industry. The industrial chemist, the biologist, the agriculturist, and the student of domestic science will find this book an elementary treatise, enveloping a great deal of terrain which to otherwise survey would require many, many books. Careful arrangement and condensation have made it possible to include the maximum of information in adequate detail for a basic understanding of the subject. Bibliographic references included at chapter ends are comprehensive and not senile. On the other hand, there are spots in the book where the most modern practices are not even mentioned. For instance, in connection with proofing textiles and textile staples against mildew and similar attack no mention is made of the new safeguarding methods and materials brought out by the chemical houses, such products, for instance, as the dowicides and the hydrocides, products far more efficient for certain purposes than shirlan (salicylanilid), etc. However, since the authors admit that their work is only meant as an introduction and supplement to the fuller literature quoted, the reviewer should and does politely agree with them.

IVOR GRIFFITH.

The Marketing of Drug Products. By Paul C. Olsen, Ph. D. Harper and Brothers, New York, 1940. $3.00.

For the second time in less than a decade, the author, a member of the faculties of the Philadelphia College of Pharmacy and Science and of Columbia University, has produced a veritable encyclopedia of facts and figures about the marketing of drug products. In the 12 chapters, comprising 294 pages, he discusses adequately, and with substantiating statistical proof, the evolution of a pharmaceutical item from the time it is but an idea in the mind of a manufacturer until it is unwrapped and placed in the consumer's medicine cabinet.

Commencing with the fundamentals of determining the market for a product, and its packaging and identification, there follow sections on promotion methods and costs, quantity discounts and free goods, resale price control, classes of merchandise distributed through the drug store, sales of these items in non-drug outlets, how they are distributed, wholesalers' problems, chain store problems, types of drug stores, and, finally, and in detail, drug store operating methods and problems.

Interspersing the reading matter are 79 tables ranging in scope from a comparison of chain and independent drug store prices to the average gross margins and unit sales of prescriptions. In addition, there are seven pages of suggested collateral readings and references, and, also, a very complete cross-index of the volume's ample contents.

In treating the vital subject of the distribution of drug products, including packaged goods and prescription items, Dr. Olsen cites specific examples of all phases of the problem. He names names, and tells the companies that have met with favor, and shows why others have not. He speaks with authority, being a member of the directing committee of the Druggists' Research Bureau, in addition to teaching the subject in two institutions of higher learning, and conducting a monthly column of this type in a nationally distributed pharmaceutical journal, the *Druggists Circular*. As a consultant, he has analyzed the operations of more than 4000 drug stores.

To anyone connected with pharmacy,—student, practitioner, manufacturer, wholesaler, advertising agent, this book should prove to be most interesting reading, and most valuable as a ready reference. It presents in inimitable style an orderly summary of the ideas and principles which are to be, yes, must be, followed in the successful marketing of drug products. JOHN E. KRAMER.